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ABSTRACT

The nature of the relationship between a teacher's knowledge of certain principles of adult teaching, his application of those principles in classroom practice, and the resultant level of satisfaction reported by his adult students was studied. Agroup of 1,596 adults in 100 university classes were the subjects. A theoretical framework adapted from Getzels and Houle was employed. A student opinionnaire and a faculty questionnaire, based on Getzels' and Houle's modified list of principles, were used. Data were analyzed by analysis of variance and multiple regression analysis. Conclusions are: (1) The level of a teacher's knowledge of principles of adult education is not significantly correlated with the level of student satisfaction in his class; (2) The extent to which students perceive their teacher's behavior as conforming to actions consistent with certain principles of adult education is significantly correlated satisfaction with their classes is determined significantly by teachers' application of principles related to student motivation. (Author/CK)

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December 23, 1969

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SUMMARY

The purpose of this study was to determine the nature of the relationship between a teacher's knowledge of certain principles of adult teaching, his application of those principles in classroom practice, and the resultant level of satisfaction reported by his adult students.

A sample of 1596 adult students in 100 classes at the University of Colorado's extension division was chosen by means of selected criteria to be the experimental subjects. These students were enrolled in credit courses lasting a semester; 100 teachers of varying educational background and experience taught the classes.

A theoretical framework adapted from Getzels and Houle was selected for the investigation. Getzels listed seven "commonplaces" important in adult learning; Houle posited seven differences between adult and childhood education. These two lists were combined into a single list of eight principles for adult teaching:

Principle 1. Perceived relevant relationships: Learning is conceived of as the patterning of meaningful units of experience into satisfactory configurations.

Principle 2. Motivation: Learning is related to the state or set of the individual which disposes him to certain behavior and the setting of certain goals.

Principle 3. Time perspective: An adult's learning is in terms of present needs rather than the future orientation of the child; the adult's time is more limited than the child's because education is not his central task.

Principle 4. Satisfactory personal and social relationships. Learning depends on satisfactory personal and social adjustment in the learning situation since learning has affective as well as cognitive components; the adult teacher usually has no other base for authority over his students than his demonstrated competence.

Principle 5. Feedback. Students who are made aware of their successes and failures and of their progress with respect to a given goal do better than those not so informed.

Principle 6. Experience. Insightful learning depends on cognitive reorganization rather than accretion of material by rote; thus, reorganization is dependent on the quantity and quality of the learner's previous experiences.

Principle 7. Capacity of the learner. The rate and the extent of learning is related to the use of objectives and methods in

the classroom which are geared to the abilities of the learner.

Principle 8. Active Search. A teaching approach which requires the learner to engage in problem solving activity leads to more effective learning than the rote memorization steps in the solution of a problem.

The research involved two independent variables, Teacher's Knowledge of Principles of Adult Teaching and Teacher's Application of Principles of Adult Learning, and one dependent variable, Student Satisfaction.

The hypotheses to be tested were:

1. The level of student satisfaction in adult classes will be positively correlated with the level of the teacher's knowledge of certain principles of adult teaching.

2. Adult students who report that their teachers are applying certain principles of adult teaching will report higher levels of satisfaction than will students who do not perceive their teachers are applying such principles.

A further set of questions regarding the relationship of certain other factors to the teacher's application of principles was also explored.

1. What is the effect of the course of study or content area on the teacher's application of principles of adult teaching?

2. What is the effect of the teacher's experience in adult education on his application of principles of adult teaching?

3. What is the effect of the teacher's experience in childhood education on his application of principles of adult teaching?

4. What is the effect of teacher training for adult education on the teacher's application of principles of adult teaching?

Two instruments, a Student Opinionnaire and a Faculty Questionnaire were devised, using Getzels' and Houle's modified list of principles. These instruments were tested for validity and reliability in a pilot study.

Statistical analysis of the data was done by means of analysis of variance and multiple regression analysis.

Hypothesis One which stated teacher knowledge was significantly correlated with teacher application of principles, was rejected at the .05 level; further analysis of the data by forming high and low satisfaction groups showed a significant relationship at the extremes of the continuum between Teacher Knowledge of Principles of Adult Teaching and Student Satisfaction. This relationship was significant at the .001 level. It was concluded that Teacher Knowledge of Principles, although

not significantly related to those classes clustered about the mean of the distribution, had a significant correlation with teacher application of principles in those classes in which the students were most or least satisfied.

Hypothesis Two, which stated that there would be a significant relationship between Teacher Application of Principles and Student Satisfaction was accepted at the .0001 level. Teachers' Application of Principles accounted for 38.27% of the variance in the dependent variable, Student Satisfaction.

The eight principles of adult learning were then used as co-variates in the regression analysis to ascertain what amount of the variance each accounted for in Teacher's Application of Principles. The best fit to the model indicated that five of these principles contributed significantly to the variance. These principles and their contribution to the variance attributable to teacher application were: relevant relationships (34%), motivation (22.5%), time perspective (18%), satisfactory learning situation (15%) and feedback (11%). These figures were significant at the .0001 level.

Four questions were then explored investigating the relationship of course content, teacher experience in teaching adults, teacher experience in teaching children and teacher training in adult education on the teacher application of principles of adult education. Experience in teaching adults was the only variable which in this population had a significant correlation with the new dependent variable, teacher application of principles of adult teaching (6.9% of the variance significant at the .01 level). Course content, teacher training, and experience in teaching children were not found to have significant correlation with teacher application of principles of adult teaching.

It was concluded that what a teacher knows about principles of adult teaching is not as significant a factor in student satisfaction as his ability to apply those principles. Application of principles of adult teaching appeared, in this group, to be based more on experience in the classroom rather than on specialized training in education.

Background data on the teacher's educational preparation indicated minimal, if any, specialized formal or inservice training in adult education, a high degree of formal training in general education, and a strong component of experience among the greater portion of the teachers.

Conclusions

1. The level of a teacher's knowledge of principles of adult education is not significantly correlated with the level of student satisfaction in his class.

2. The extent to which students perceive their teacher's behavior as conforming to actions consistent with certain principles of adult education is significantly correlated with the level of satisfaction which the class reported by the students.

3. Teachers may be able to identify selected principles of adult education and yet be perceived by students as exhibiting behavior inconsistent with those principles.

4. The extent to which students perceive their teachers as exhibiting behavior which is defined as consistent with adult education principles is positively correlated with the number of years experience the teachers have had in adult education.

5. Adult students' level of satisfaction with their classes is determined more by the teacher's application of principles regarding (a) the student's perceived relevant relationships, (b) motivation of the student, (c) the peculiar time perspective of the student (d) satisfactory personal and social adjustments of the student and (e) feedback to the student, than by the teacher's application of principles regarding (a) the experience of the adult student, (b) the capacity of the adult student, and (c) the adult student's need to be involved in an active search for meaning.

6. The extent to which a teacher is perceived by his adult students as demonstrating teaching behaviors defined as consistent with the principles of adult education is not related to the amount of experience the teacher has had in elementary and secondary education.

7. The content area of courses taught in a university extension division program was found to be significantly related to the student's perception of the level of the teacher's application of adult education principles. Although the content areas and level of application variables were not found to be independent, no explanation was found to account for the relationships.

8. Teachers employed in the adult education program of a university extension division were found to have: (a) a considerable amount of formal training in education and in psychology, (b) a minimal amount of formal training in the psychology of learning, and (c) virtually no training in adult education.

9. Women students enrolled in 100 university extension classes reported significantly higher levels of satisfaction with those courses than did men students attending those classes.

10. The age of students enrolled in 100 university extension classes was positively correlated with their reported levels of satisfaction in those classes.

Student satisfaction is a necessary, if not a sufficient, condition for learning to take place and therefore is an important consideration in the adult classroom. The student satisfaction measure does not indicate,

however, the quality and extent of the teaching done in the classroom, using the usual scientifically acceptable objective measures. These data cannot be generalized beyond the criteria of student satisfaction which is, in voluntary adult education, sufficiently important to merit careful attention.

Recommendations

1. Although the knowledge of principles of adult learning is a necessary prerequisite for adult teachers, the level of a teacher's knowledge of principles alone is not an adequate predictor of a teacher's ability to apply these principles in the adult classroom. Therefore, teacher training courses should not concentrate on the teaching of principles alone but rather seek ways to train teachers in the application of these principles.

2. Evaluation of teacher training programs should not be based solely on evidence produced by pencil and paper tests, since what knowledge a teacher is able to demonstrate on paper is a poor predictor of what a teacher is able to apply in the classroom; on the other hand the knowledge of principles of adult education, either through formal acquisition or intuitive recognition, is a prior condition to the kind of teaching which will be viewed by adult students as satisfactory.

3. In the teaching of principles of adult education and adult learning, emphasis should be placed on instruction at level 3 of Bloom's taxonomy[1] rather than at level 1 or 2; knowledge and comprehension of principles of adult education and adult learning alone has been shown to be inadequate to ensure application of such principles.

4. A teacher's experience in working with children is not a useful predictor in estimating a teacher's ability to perform in an adult classroom. Therefore, requiring credentials of elementary and secondary certification in the public schools is not a satisfactory screening device in recruiting adult teachers.

5. The best indicator of the ability of a teacher to teach adults in a manner regarded by the adult student as being satisfactory to him is the number of years experience that the teacher has had in teaching adults. This is probably a significant qualification in adult classes where a student's continuing attendance is based on his perception of the degree to which his needs are being met. In courses where other factors influence retention, such as certification, the compulsory nature of the course, or the credit nature of the course, this factor of experience in teaching adults might not be reflected in declining

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[1]Benjamin S. Bloom, Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain (New York: Longmans, Green and Co., 1956).

student participation but would likely be evident in student evaluations of the class. Accordingly, teachers who have demonstrated their ability to meet the needs of adult students are most likely to satisfy the needs of other adults in new classes.

CHAPTER I

INTRODUCTION

Statement of the Problem

The purpose of this study is to determine whether there are any relationships among a teacher's knowledge of certain principles of adult teaching, his application of these principles in classroom practice, and the level of student's satisfaction with the learning situation. At a time when adult education has become an imperative in a highly technical, urbanized society there is a need to delineate those unique aspects peculiar to the adult classroom which might improve the quality and efficiency of adult learning.

Johnstone,[1] in 1965, in a national study of adult participation in planned sequential educational experiences estimated that 25 million adults in the United States were so involved. Another 20-25 million adults have been identified as undereducated persons requiring basic education in order to maintain employment and to be fully functioning citizens.[2]

In adult educational programs now available, most teachers found in the classroom have had no specialized training in teaching adults; they have for the most part been recruited from youth and college classrooms, often teaching adult classes as supplemental to their primary commitments.

The only significant effort to train teachers of adult has been recently undertaken through federally supported programs. This effort came about as the result of the passage of the Adult Education Act of 1966. During the summers of 1966, 1967, and 1968 an approximate total of 3000 people participated in four-week, 132 hour long teacher training workshops.[3] Even this effort reached a small portion of the projected total requirement.

The need for developing effective training programs for the educators of adults persists. The new national commitment to eliminate illiteracy from our adult population within the next few decades has added a sense of urgency not previously felt by educators.

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[1]John W. C. Johnstone and Ramon J. Rivera, Volunteers for Learning (Chicago: The Aldine Publishing Company, 1965), pp. 1-2.

[2]U.S. Department of Commerce, Bureau of Census, Pocket Data Book USA, 1969 (Washington, D.C.: Government Printing Office, 1969), pp. 158-159.

[3]National University Extension Association, Final Report - National Adult Basic Education Training Program, Summer 1966 and 1967, (Silver Springs, Maryland: National University Extension Association, 1968).

For several years the educators of children have attempted to devise the curricula for elementary teacher training programs upon the basis of their understanding of the child as a learner regardless of how imperfect that understanding may have been at any particular time. The application of the limited research findings is adhered to in the development of curricula for the secondary teacher training programs. This being the current educational practice, it would seem reasonable to apply this same rationale to the problem facing the adult educator: that of determining empirically if and how the classroom learning situation of the adult differs from that of the child. Before an adequate job of training teachers of adults can be done, even with an unlimited amount of Federal support, an attempt must be made to find the solution of this problem and to develop some proven concepts to be used in future training efforts.

Background Information

D. B. Gowan, reporting in 1962, stated that the typical patterns of pre-service preparation for the part-time teacher is, "a conference with the department head, or dean, or director of the evening division concerning college routines and student relations."[1] He also reports that very infrequently is the teacher of adults exposed to the various theories of learning, philosophies of education or pedagogical methods. Supervision and evaluation of part-time teachers is also reported to be on a haphazard basis.

This absence of formal training for teachers of adults is not surprising when we consider the emphasis traditionally given almost exclusively to children. As Houle points out, "Philosophers, physiologists, and psychologists have collaborated to help us understand and foster successive patterns of growth in childhood. We have fully developed our educational system in such a way as to take account of them." Houle continues, "We have carefully detailed the various stages of infancy, childhood, pre-adolescence, and adolescence. We have then left the individual at the edge of adulthood, apparently assuming that he was going to remain essentially the same kind of person forever after. Solomon knew better than this ... so, in fact, does anybody with even the most limited powers of casual observation."[2]

Only during the past few decades have psychologists, educators of adults, and human development specialists carried on inquiries into the nature of the adult learners and directed their efforts beyond the education of children and adolescents. The pioneer and fundamental research in this area was reported by E. L. Thorndike who called

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[1]D. B. Gowin, The Part-Time College Teacher (Chicago: Center for the Study of Liberal Education for Adults, 1961), pp. 7-8.

[2]Cyril O. Houle, "The Ends and Means in Adult Education Research," Adult Education, XII, No. 4 (Summer, 1962), p. 213.

attention to the differences in learning abilities between adults and children.[1] The studies conducted after Thorndike's findings were announced have served to increase our understanding of these differences. They have also resulted in the accumulation of a body of research and professional speculation relevant to the nature of the adult learner and the various teaching methods and techniques that are especially applicable to adult education.[2]

At least two approaches have been taken to the stating of the problem of delineating the possible differences between children and adults as learners. One of these approaches is taken by Getzels who has identified seven propositions which appear to be common to the major theories of learning. He suggests that these basic propositions can be used as guides to good adult teaching procedures.

Getzels' propositions state that:

1. "Learning depends on motivation. Motivation is defined as a 'state or set of the individual which disposes him to certain behavior and for setting certain goals.' The importance of motivation, whether it is the 'drive reduction' of Hull or Lewin's hypothesis of a 'stress field,' is emphasized by all who have attempted to develop a theory of learning. Not only how much is learned but what is learned is a function of our motives in the learning situation. It is possible that the observed difficulty of adults in achieving novelty in certain tasks is not a function of intrinsic inability to learn (in terms of some physiological deficiency) but a motivational resistance to change.

2. "Learning depends on capacity. There are individual differences in learning ability. If learning is to ensue, the objectives and the methods in the classroom must be geared to the abilities of the would-be learner. An infant cannot be taught to run, an idiot to do calculus, a psychotic to take an interest in people. Or if certain types of learning must ensue (that is, there are certain standards that must be obtained), would-be learners with ability to achieve these standards must be selected.

3. "Learning depends on previous experience. Insightful learning depends on cognitive reorganization rather than on the accretion of material by rote. The meaningful reorganization itself depends on - may be either facilitated or hindered by - previous experience. This effect is true for all would-be learners, but it is enormously magnified as a function of age by the very

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[1] E. L. Thorndike, Adult Learning (New York: MacMillan, 1928).

[2] Edmund de S. Brunner, and others, An Overview of Adult Education Research (Chicago, Illinois: The Adult Education Association of the U.S.A., 1959), Chapters 2, 3, 10.

nature of the case that adults have, for good or ill, a greater fund of experience.

4. "Learning depends upon perceiving relevant relationships. Learning is conceived as the patterning of meaningful units of experience into 'satisfactory' (i.e. problem-solving) configurations. Thorndike himself discarded his 'pure' connectionism when he postulated the principle of 'belongingness.' And of course, learning as the patterning of parts into wholes is at the very core of the Gestalt or Configurationist concept of behavioral reorganization.

5. "Learning depends on active search for meaning. Search for meaning may entail a period of fumbling akin to the so-called blind or random trial-and-error behavior. Present theories, however, hold that if the learner is truly searching for understanding in the problem situation and not only rote remembrance of steps in the solution, his apparent trial-and-error is not random and certainly not blind. He is making a real 'try' for the solution and is not going through just any behavior of which he is capable. The try is the best hypothesis the learner is able to make at this particular time, and the instructor should not treat it with disdain - even when the hypothesis is wrong. For though it may be wrong from the instructor's point of view, it may be 'right' and 'meaningful' from the student's point of view.

6. "Learning depends on feedback (evaluation of progress). Studies have shown that students who are made aware of their successes and failures and of their progress with respect to a given goal do better than those who are kept in ignorance. Thorpe and Schmuller[1] suggest that all theories of learning tend to subscribe to the view that some indication of the progress being made is essential to continued motivation in relation to a given goal.

   "Evaluation should be used as a positive form of guidance in this search, and should be designed to motivate learners to achieve to the extent of their ability. It should not be used as a 'judgment' or punishment.

7. "Learning depends on satisfactory personal and social adjustment in the learning situation. Learning is held to be an emotional as well as an intellectual function for the student. The would-be learner responds emotionally to the learning situation, to the instructor, and to his fellow students. All psychologies of human learning agree that learning proceeds most easily when the affective relationships in the learning situation are congruent with the individual and group needs and attitudes.

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[1]L. P. Thorpe and A. M. Schmuller, Contemporary Theories of Learning (New York: The Renald Press, 1954).

> "The class problem and the goal to be achieved must be clearly outlined by the entire group within a common frame of reference so that every individual may find the task congenial and worth his effort. Every student must want to contribute to the general purpose. He must feel free to search and fumble if necessary, without fear of either institutional or interpersonal threat. Everyone in the class must be involved in the problem-solving activity so that the greatest number of experiences and hypotheses may be shared by the greatest number."[1]

While this brief exposition of Getzels is limited to seven factors, or "commonplaces" drawn from the broad and often speculative field of human learning theory, it appears to be as complete a synthesis as is available in the literature of adult education. As Getzels states, "To observe that we do not yet have an altogether serviceable theory of human learning is not to say that we do not have available to us a number of highly useable concepts that may be applied as guideposts for classroom practice in the adult education situation."[2]

Another approach has been taken by Houle who has hypothesized that there are at least seven ways in which adult education differs from childhood education. Houle's hypotheses suggest that:

1. "The adult's wider range of experience enriches and gives perspective to his learning processes.

2. "The adult has had kinds of experience that are denied to children, such as courtship, marriage, parenthood, advancement on the job, and awareness of bodily decline. Therefore, he has a depth of insight, particularly in the humanities and the social sciences, which the child cannot possess.

3. "The adult must usually consider educational activity to be an incidental (although sometimes very important) task, whereas it is the central concern of childhood.

4. "The child goes to school to fulfill an expected obligation, to prepare for later life, and to receive the rounded training which his society believes he needs. Adults undertake learning experience chiefly in terms of necessity or absorbing interests.

5. "Adults can learn most things which are meaningful and important in terms of their present needs more rapidly than can the child, although many adults encounter initial difficulties caused by the prolonged disuse of their mental facilities.

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[1] J. W. Getzels, Learning Theory and Classroom Practice in Adult Education (Syracuse: University College of Syracuse University, 1956), pp. 8-11.

[2] Ibid., p.8.

6. "The habit patterns of adults are more fixed than are those of children, a fact which is often a deterrent, although not necessarily a block, to education.

7. "The teacher of adults has no generalized authority over his students such as that growing out of the adult-child relationship in earlier schooling. He has only the authority he can win by his demonstrated competence."[1]

The above propositions supplemented by the observed differences in adult education suggest a conceptual framework that may be useful in understanding the characteristics of the adult learner that are relevant to designing effective learning experiences in the adult classroom situation.

For the purpose of this study, principles of adult teaching will be formulated in terms of teacher activities which are appropriate in an adult classroom situation. Two tests of appropriateness will be utilized to screen and describe appropriate adult education practices: 1) conformity with Getzels' "propositions" of learning theory, and 2) recognition of the important differences between adult education and childhood education postulated by Houle.

Teacher effectiveness in the adult classroom situation will be defined in terms of a satisfaction-dissatisfaction rating given by the students.[2] Although these terms are not clearly synonymous because of the autonomy of the adult student and his ability to withdraw from the learning situation at will, student satisfaction is a necessary if not a sufficient condition for learning to take place.

It is hypothesized that teachers of adults who are knowledgeable about certain principles of adult teaching will be more apt to apply these principles in classroom practice than will teachers of adults who are not as knowledgeable about certain principles of adult learning. Further, the teacher's knowledge and application will be directly correlated with student satisfaction.

Based upon the preceding discussion of the problem, the two major hypotheses of this study are:

1. The level of student satisfaction in adult classes will be positively correlated with the level of the teacher's knowledge of certain principles of adult education.

2. Adult students who report that their teachers are applying certain principles of adult teaching will report higher levels

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[1] Cyril O. Houle, Class Lecture, Education 382 (The University of Chicago, October 13, 1961.)

[2] Charles E. Osgood, George J. Suci, Percy H. Tannenbaum, The Measurement of Meaning (Urbana, Illinois: University of Illinois Press, 1957), Chapter 3.

of satisfaction than will students who do not perceive that their teachers are applying such principles.

If relationships are found to exist between teacher's knowledge of certain principles of adult teaching, applications of these principles in classroom practice, and student satisfaction, an attempt will be made to determine the effect of certain other factors on the application of principles of teaching.

Teacher's application of principles of adult teaching will be treated in two ways. First, in the case of hypothesis 1, it will be regarded as an independent variable with student satisfaction being the dependent variable. Second, in the case of the effect of a certain factor on teacher's application it will be regarded as the dependent variable with teacher's tenure and teacher's training being the independent variables.

The following questions will serve to guide this phase of the study.

1. What is the effect of the course of study or content area on the teacher's application of principles of adult teaching?

2. What is the effect of the teacher's tenure in adult education on his application of principles of adult teaching?

3. What is the effect of the teacher's tenure in childhood education on his application of principles of adult education?

4. What is the effect of teacher training for adult education on the teacher's application of principles of adult education?

To answer these questions, teacher's application of principles of adult teaching or failure to apply principles of adult teaching will be treated as dependent variables, and course content, tenure in teaching adults and youth, and teacher training in adult education will be treated as the independent variables. The following hypothesis will be used to test the theorized relationships among the variables.

Classes in which the teacher is perceived by the students as applying certain principles of adult teaching can be distinguished from classes in which the teacher does not apply these principles by having:

a) Content which lends itself to group work or group discussion.

b) Teachers with longer tenure in teaching adults.

c) Teachers with little or no experience in teaching children.

d) Teachers who have had special training in teaching adults.

The criteria for selecting the population to be used to test the hypotheses and a brief description of this population is given below.

The Population Studied

In selecting the adult classes to be used in this study, these criteria were applied:

1. All classes should have a high level of student retention throughout the entire school term. Because adult students participate in adult education classes on a voluntary basis, retention was considered to be of primary importance.

2. All classes should be scheduled to meet for the entire school term, generally, twelve to sixteen weeks. This would provide an opportunity for maximum interaction between the teacher and students, in as much as, near the end of the school term students were to be asked to express their opinions about their classroom learning experiences.

3. Administrators and teachers should be amenable to participating in the study. It appeared that only by gaining the willing cooperation of the teachers would it be possible to enter the adult classrooms to be studied. Generally speaking, the teacher's cooperation had to be obtained through the efforts of the administrators on behalf of the investigator.

4. All classes should be conducted at, or near, a central location. The centralized location should be in or near the Denver, Colorado metropolitan area. A physical logistical problem of collecting data from approximately 100 adult classes, and the period of follow-up activities which would occur during a time when the investigator had continuing professional obligations at the University of Colorado.

5. All classes should be taught by competent subject matter experts who have had a wide variety of professional preparation, teaching preparation, and experience in their professional fields. In attempting to test the effect of the teachers' knowledge of, and application of, selected principles of adult teaching on their students' opinions of how satisfied they were with their classroom experiences, it was assumed the teachers' experimental backgrounds would differ. It was also assumed that these differences would be greater if the experiences and training of the teachers were more varied.

6. All classes should have a student population which could easily complete an opinionnaire which required the students to follow written instructions. It appeared that this information gathering device afforded the practical possibility of securing a large number of student responses and would seem to make possible the anonymity in replies necessary to insure candidness.

7. All classes should have an initial enrollment of at least fifteen and not more than forty. It appeared that within these limits the size of the class would not impede the student-teacher relationship.

The application of criterion number one and criterion number two required the elimination of the adult students enrolled in classes where some kind of credit was not offered for successful completion. These non-credit classes are generally irregular in length, and students are obliged to remain enrolled only as long as they are interested or satisfied. Criterion six eliminates from consideration any lower level, basic adult education classes. While the information asked for in the study can be given by a student in any adult class, as it reflects situations thought to be common to all, a candid answer would require that the student had not worked directly with the teacher in preparing his response.

Considering the limitations imposed by the above criteria, it was determined that the sample population should be drawn from a program offering credit classes for adults.

The University of Colorado's Denver Center offered the largest evening credit program in the metropolitan Denver area. In addition, the University also conducted evening credit classes on its Boulder compus located only 18 miles away. These credit class programs seemed to have satisfied the established criteria.

The Institution, Teachers, and Students

The University of Colorado's Denver Center was a part of the University's Extension Division until 1965. After it became a center, emphasis was given to the daytime program; however, the evening program remained 59 per cent of the total offering while the day program accounted for 41 per cent of the Center's program. The faculty teaching in the day program were almost totally members of the Denver Center's regular, full-time staff. The faculty teaching in the evening program were drawn from the following sources: (1) Denver Center's regular faculty, approximately 10%, (2) Boulder campus' regular faculty, working on an extra assignment, approximately 60% and, (3) practitioners from other educational institutions, business and industry, approximately 30%.

The Boulder campus' evening program was under the direction of the University's Extension Division. There were no full-time faculty members assigned to its program but, since it was located on the main campus of the University, 80% or nineteen teachers came from the regular campus faculty. The other 20%, or six teachers held other full-time jobs outside of the University.

The number of adult students over 21 years of age enrolled in these two evening programs was 3208. The number and percentage of students in various categories follows.

(1) ages 21-29 years - 1833 students - 56%
(2) ages 30-39 years - 940 students - 29%
(3) ages 40-49 years - 336 students - 11%
(4) ages 50 years and over - 99 students - 4%

Totals - 3208 students - 100%

(5) 1764 or, 55% were males and 1444 or 45% were females.

The number of students who participated in the study was 1596. They are categorized as follows.

(1) ages 21-29 years - 883 students - 55%
(2) ages 30-39 years - 503 students - 31%
(3) ages 40-49 years - 166 students - 10%
(4) ages 50 years and over - 44 students - 4%

Totals - 1596 students - 100%

(5) 817 or, 51% were males and 779 or 49% were females.

Summary

In this section the problem under investigation has been presented along with the need to further our understanding of the interaction between teacher preparation, teacher application of adult learning principles and student satisfaction. A rationale, extrapolated from Getzels and Houle, has been suggested to guide the investigation. Hypotheses regarding the major variables have been developed from this rationale. The population, which was the focus of the investigation, as well as the institution in which the study was located, have been described.

The following section will describe the instrumentation, testing of the instruments and the nature of the statistical analysis.

CHAPTER II

DEVELOPMENT OF THE INSTRUMENTS

This chapter focuses on the instruments used to obtain the information required to test these hypotheses. Copies of the instruments are included as Appendix 1.

Design for the Instruments

The hypotheses called for a comparison of the teacher's knowledge of selected principles of adult teaching, the student's opinion of how the teacher had applied these principles in the classroom, and how satisfied the students said they were with their classroom experiences. If relationships were found among these variables the study would seek to determine the effect of, (1) course of study or content area, (2) teacher's tenure in adult teaching, (3) teachers' tenure in childhood teaching, and (4) teachers' training in adult teaching skills on the students' perception of their teachers' applications of selected principles of adult teaching in their classroom.

Relation of Instruments of Hypotheses

The Student Opinionnaire

Part I, items 3 through 20, secured scores representing the student's opinion of how he perceived the teacher applying certain principles of adult teaching. These items were developed deductively from the investigator's knowledge of classroom teaching experiences which were gained as a classroom teacher. The total score for the section was used as the independent variable in testing hypothesis two.

Part II, item 21, was used to secure a mean score of student satisfaction and utilized selected scales from Osgood's[1] semantic differentiation study. This score composed of sub scores on five scales, was used as the dependent variable in testing hypothesis one, and two.

The student opinionnaire utilized four item arrangements: (1) The first seven items of Part I asked the respondents to describe their teacher's classroom behavior on a five point scale in terms of frequency. (2) Item 10 in this part asked the respondent to indicate the absence or presence of a described teacher action. (3) The last 10 items asked the respondencts to check the one statement in each item which best described the teaching behavior practiced by their instructor. (4) The

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[1] Osgood, op. cit.

student's satisfaction rating was a series of word-pairs arranged on a five-point Likert type scale. The middle point of the scale was an expression of neutral feeling, and was felt to be necessary as some respondents could possibly have had no feelings in response to a word-pair on the scale as it related to their classroom experience.

The Faculty Questionnaire

Part I was designed to secure demographic data such as educational background, tenure in adult and child education, and membership in professional societies. These data were sought because they served as a means of categorizing the respondents into groups with adult teacher training and without adult teacher training. This adult teacher training experience was treated as an independent variable and used to test the sub-hypothesis II, a, b, c, d.

Part II was designed to secure a score representing the respondent's knowledge of selected principles of learning theory, and served as an independent variable in testing hypothesis one. A total score was secured on this part.

Part III served a purpose identical to Part II above, the difference being one of design. These open-ended questions provided an opportunity for the instructor to write his answer in practical classroom terms. A total score was secured for the five questions in this part.

Part IV was used to secure the degree of the respondent's expressed agreement or disagreement with suggested differences in child and adult learners. This independent variable was utilized in testing hypothesis one. A score was gained for each of its seven items and each single score as well as a total score was used in the analysis.

Development of the Parts of the Instruments

The development of the various parts of the questionnaire and opinionnaire described in this section began with a review of relevant literature in an effort to determine if appropriate measuring devices existed. Appropriateness was determined by referring to the propositions of Getzels and Houle which together formed the selected principles of adult teaching used in testing the hypotheses of the study.

During the developmental process, the instrumentation of the study was discussed with experienced teachers of adults, their students, and adult education program administrators, as well as, persons experienced in questionnaire construction. Pretests of the instruments assisted in gaining comments from students and teachers. These comments and suggestions were the basis for re-evaluation and refinement into a final form.

The Faculty Questionnaire[1]

Part I. Items in this section were constructed to provide information about the teachers' participation in formal and informal teacher training activities, and their tenure as classroom teachers. The instructors were requested to furnish information about academic course work in education and psychology, and more specifically, in adult education and the psychology of learning. In addition the respondents were asked to specify the number of adult education books and journals they had read and their professional society memberships. Numbers of year's experience in teaching children and teaching adults were also measured. This information was used in the testing of the series of questions following hypothesis two.

Part II. Items in this section were used in an attempt to determine the teachers' knowledge of Getzels' seven "commonplaces" of human learning theory. Briefly reviewed, they were: Learning depends on, (1) Motivation, (2) Capacity, (3) Previous Experience, (4) Perceiving Relevant Relationships, (5) Active Search for Meaning, (6) Feedback, and (7) Satisfactory Personal and Social Adjustments. The teachers' knowledge of these principles of learning theory was measured by a 14 item, multiple-choice test with each item having three alternative choices.

These items were gathered by making requests for prepared test items to six textbook publishers. Four publishers[2] responded with various lists and files of approximately 4300 psychology test items. Using Getzels' commonplaces as a content guide and the multiple-choice pattern as a format the investigator chose a group of 132 test items. A panel of ten judges was asked to indicate the appropriateness of each item as a basis for contructing the questionnaire to be used in testing teachers' of adults knowledge of Getzels' seven "commonplaces." The instructions to each judge explained the purpose of the test and listed Getzels' "commonplaces." The panel was composed of professors of psychology, education, and adult education, and practicing adult educators.

The criterion for being included in the initial group of test items was that eight out of the ten judges had agreed that the item should be used. Thirty eight items were included after the initial screening had been completed. A second panel of three educational psychologists at the University of Colorado were next asked to pick the items from the initial group which they felt best fitted the seven "commonplaces." The panel agreed on twenty items. Three items testing knowledge of "Motivation," four items testing knowledge of "Capacity," three items testing knowledge of "Previous Experience," two items testing knowledge of "Relevant Relationships" two items testing knowledge of "Active Search for Meaning," three items testing knowledge of "Feedback," and three items testing knowledge of "Satisfactory Personal and Social Adjustments," were used.

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[1]Appendix I.

[2]Appendix II.

This 20 item test was administered to two undergraduate and one graduate educational psychology classes at the University of Colorado during the fifteenth week of a seventeen week semester. The range of scores from the 154 respondents was 40% to 95%. Each item was answered correctly by at least part of the students. Only one item was answered correctly by every respondent. On the basis of an analysis of the test items six items most often answered correctly were eliminated. The remaining fourteen items were included in the final Faculty Questionnaire. It must be noted that because of a printing error in the final questionnaire item number 18 (Previous Experience) was not used. Of the final thirteen items, two tested "Motivation," two items tested "Capacity," one item tested "Previous Experience," two items tested "Relevant Relationships," two tested "Active Search for Meaning," two items tested "Feedback," and two items tested "Satisfactory Personal and Social Adjustments."

Part III was added after the initial set of instruments was tested on some adult classes in field trials which are reported later in this chapter.

The purpose of Part III in the final instrument was to provide the respondents with an additional opportunity to express their knowledge of certain selected principles of adult teaching via an open-ended statement. In the interest of brevity and as an accommodation to the limited time the teachers had available to complete the questionnaire only five questions were asked. These items tested the teachers' knowledge of the following Getzels' "commonplaces:" motivation, capacity, active search, feedback, and satisfactory personal and social adjustment.

Again, a panel of psychologists was asked to read and evaluate these responses. Each item was scored 1.0 to 10.0 with a total score of 50 possible. The individual teacher's score for Part IV was an average of the two scores assigned by the judges. It had been agreed in advance that if the two judges were more than three points apart in their scoring of any one item a third judgment would be sought and an average of all three scores would be assigned. This mediation procedure was employed on 82 items out of the 500 evaluated, or in 16% of the cases.

Part IV was designed to obtain the teacher's estimate of the importance of each of Houle's posited child-adult learning differences. In the initial form of the questionnaire the teachers were asked to state if they felt there were any differences, -- yes or no. If they responded in an affirmative way, they were asked to enumerate these differences. The use of this initial form of Part IV is commented on in a report of the field trials of the instruments.

In the final form of the questionnaire each of Houle's hypothesized child-adult learning differences was arranged as a seven point Likert-type scale. The respondents were asked to place each posited child-adult difference on the seven point scale in terms of its importance or unimportance as a factor which he considered as he designed his course for adult students.

Students Opinionnaire

The Student Opinionnaire was constructed with three basic parts. Part I, a brief demographic section furnished information about the sex and age group of the respondents. Five age groupings were used to categorize the students in the sample population. While these categories, (1) under 21, (2) 21-29, (3) 30-39, (4) 40-49, (5) 50 or over, gave only a gross measure of individual ages, they corresponded generally to the reporting system used the Extension Division of the University of Colorado.

Part II consisted of eighteen items. Each item was developed to describe a possible classroom teaching situation. A series of twenty-five such statements was submitted to a panel composed of two teachers of adults, two adult students, an educational psychologist and two adult education specialists. This panel was asked, on the basis of the Getzels-Houle rationale for principles of good adult teaching, to select those statements which most nearly fit the rationale and reflected teaching situation generally found in an adult classroom.

Eighteen descriptions were selected. For items three through ten a frequency scale was provided and the students were asked to indicate how often, in their opinion, the teacher had displayed the described behavior. For items eleven through twenty the respondents chose a statement which in their opinion best answered the question about how their teacher had handled various situations in the classroom. For all of the items in this section, a higher score was given an answer which indicated a teacher's behavior had conformed with the adult teaching principles posited by Getzels and Houle.

Part III of this instrument was a series of satisfaction scales. As with Houle's suggested child-adult differences a seven point scale was used. The seven point scale rather than a five point scale was preferred because it seemed to provide for the wider expression of negative or positive feelings of student satisfaction, and because the educational level of the students was sufficiently high to assure their ability to make such discriminations. The pairs of words chosen for this part of the instrument were taken from Osgood's listing[1] of word pairs or followed Osgood's practice[2] of selecting word pairs from Roget's Thesaurus (1941 edition). Based upon his twelve years experience as an administrator of university extension programs, the investigator selected word pairs which appeared to be appropriate for describing a student's satisfaction with a classroom experience. The initial form of the Student Opinionnaire listed eleven pairs of descriptive term to be rated by the student. These pairs were: awful-nice, fair-unfair, good-bad, interesting-boring, meaningful-meaningless, pleasant-unpleasant, positive-negative, satisfactory-unsatisfactory, important-unimportant, and valuable-worthless. During the subsequent field-trials, which are described below, this list was shortened to

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[1]Osgood, op. cit., p. 36.

[2]Osgood, op. cit., pp.47-49.

five word-pairs. A copy of the final Student Opinionnaire is included in Appendix 1.

Field Testing

The two instruments used in this study were intially tested with 40 adult students in four credit classes. These classes were conducted in Grand Junction, Colorado, by the University of Colorado Extension Division. These classes were selected because: (1) they were just concluding, (2) they were relatively small in size and easy to follow up, and (3) the teachers had agreed to assist in evaluating the instruments. As a result of this trial the following information about the instruments was gained: (1) Both the faculty and student instruments were completed within forty minutes; (2) The faculty felt that Part II, the educational psychology test items, somewhat threatened them since they had not thought of teaching in these terms; (3) The faculty also felt that Part IV, the child-adult differences posited by Houle, were difficult to speak about in such an unstructured format; and (4) The students who reported their age as 50 or over failed to mark all of the eleven items on the satisfaction scale.

As a result of this first trial the following changes were made:

1. The teachers were given an opportunity to answer the educational psychology test in operational terms. This became Part III of the Faculty Questionnaire.

2. The student satisfaction scale was shortened to six word-pairs. The elimination of five word-pairs was made on the basis of extended interviews with two students and an analysis of the least completed scales. These pairs were deleted: (1) pleasant-unpleasant, (2) valuable-worthless, (3) awful-nice, (4) sad-happy, and (5) positive-negative.

The revised instruments were then retested on 230 adult students in fifteen credit classes meeting at night on the Boulder campus. In addition to having a greater number of classes than in the first test a greater variety of classes was also included. The criteria used to choose the first trail site was also applied to the Boulder classes. They met all of these criteria and had the advantage of numbers and variety listed above.

As a result of this second trial, and extended interviews with six of the students and four of the teachers the following changes were made:

1. The child-adult differences posited by Houle were described and listed. Each of these seven proposed differences was converted into a seven-point scale. The teachers who were interviewed believed that they had less difficulty in responding to the items in this format than in the previous one. This revision was included as Part IV on the final teacher instrument.

2. Student opinionnaire items which were described on the same scale were grouped together. Ambiguous meanings were cleared up with the assistance of randomly selected students who were interviewed.

3. An additional word-pair, fair-unfair, was deleted from the satisfaction scales leaving a total of five. These five were used in the final form of the instrument. This final deletion was made on the advice of the students who felt this word-pair was somehow different than the others in that it seemed to describe the teacher rather than their overall opinion of their class situation.

In the following sections of this chapter are descriptions of the process used in collecting the data, validity and reliability of information, and a brief description of the statistical methods used to test the hypotheses.

The Collection of Data

The data necessary for testing the hypotheses were collected from 88 adult credit classes conducted at the Denver Center of the University of Colorado and 12 adult credit classes conducted on the University's Boulder campus. The same general steps were carried out at both locations.

Step 1. The Deans of the Colleges of Arts and Sciences, Business, and Education sent a letter to each of their faculty members. This letter explained the purpose of the study; estimated the amount of class time required; guaranteed anonymity to the teacher and student; and invited each teacher's participation in the study. Each teacher was given the option of informing his Dean if he did not agree to be included. Fifty-nine out of 75 teachers, or 78% of the Arts and Sciences faculty accepted the invitation and participated in the study. In the Business School 19 teachers out of 24, or 79%, agreed to participate. The School of Education faculty responded with 22 teachers from a faculty of 28 or 79%.

Step 2. Packets were prepared for each class in the study. Each class packet contained one Faculty Questionnaire and one Student Opinionnaire for each student who had enrolled in the class. Each of the classes was assigned a number which corresponded to the teacher's identification number. Instructions were placed on the outside of the packet. These instructions were: (1) appoint a student to distribute and collect the instruments; (2) allow at least 30 minutes for the completion of the instruments; (3) when the questionnaires had been collected and placed back in the packet, the student should return them to the library.

Step 3. Packets were distributed to the teacher's classroom during the 14th week of a 17 week semester and collected from the library each evening, Monday through Friday.

Step 4. Packets which had not been returned at the end of the evening were searched for that evening. Because several teachers used

the same classroom during the evening, this search was continued the next day or until the packets were recovered.

Since the investigator could not be physically in each classroom as the test was completed a random sample of 25 students from the total sample was polled by letter. The letter asked if they were in class when the opinionnaire was completed (a sample was enclosed), and if they were, had the above described directions been followed by their teacher.

Four responded that they had not been present, twenty-one indicated that the directions had generally been followed. No respondent indicated that his teacher had said anything that influenced the manner in which he completed the opinionnaire. This seemed to indicate to the investigator that his instructions generally had been followed.

Validity of the Instruments

The degree to which the Faculty Questionnaire and Student Opinionnaire measure what they purport to measure was determined by internal correlation of items, by face validity, and by judges' independent assessments and collective agreements.

The Faculty Questionnaire

Part I, the demographic information on the teacher's educational background and extent of continuing education, was accepted as having face validity.

Part II, Psychology of Learning, item numbers 8-20 were initially selected, and categorized according to Getzels' commonplaces by a panel of judges. An inter-item correlation was made of the items and the following results were obtained.

TABLE 1.--Intercorrelation of Teacher Knowledge, Items 8-20 (N = 100)

Variable Name	Getzels' items	Faculty Part II items	r
Motivation	1	9, 14	.086
Capacity	2	13, 21	.150
Prev. Exp.	3	12	--
Rel. Relationships	4	19, 20	-.231*
Active Search	5	8, 15	.201*
Feedback	6	10, 16	.296**
Sat. Personal & Soc. Adjust.	7	11, 17	-.036

*Significant at .05 level.
**Significant at .01 level.

The judges' opinion on items to test any one principle was not in general supported by significant correlations between items.

Upon reflection it appears that although the components of Getzels' seven commonplaces may have been conceptually discrete, empirical independence of components could not be established on the basis of these data.

Part III, psychology of learning items (21-25) with an open-ended format were initially selected and categorized according to Getzels' commonplaces by a panel of judges as described in Chapter II. An inter-item correlation was made of the items in this section. The following resultant mutually high correlations are illustrated in the table below.

TABLE 2.--Intercorrelation of Teacher Knowledge, Items 22-26, Part III, Faculty Questionnaire (N = 100)

Variable Name	Getzels' items	Faculty Part III items		Correlation M	C	AS	Fb
Motivation	1	25					
Capacity	2	26	C	.590			
Active Search	5	23	AS	.527	.456		
Feedback	6	24	Fb	.443	.476	.497	
Sat. Personal & Soc. Adjust.	7	22	SPSA	.343	.464	.510	.389

Significant at the .01 level.

The high correlations between each pair of the items tends to indicate that all items share a common variance source.

Part IV, items 1 through 7 measured the extent to which the teacher regarded these items as important elements in the design of his adult class. The correlation matrix illustrated below seemed to indicate strong similarities among these seven items. (The complete list of Houle's propositions is described in Chapter I.)

TABLE 3.--Inter-item Correlation of Houle's Posited Child-adult Learning Differences, Part IV, Faculty Questionnaire (N = 100)

Variables	H1	H2	H3	H4	H5	H6
H2	.460**					
H3	.271**	.333**				
H4	.240**	.445**	.256*			
H5	.226**	.123**	.342**	.244*		
H6	.263**	.217*	.267**	.146	.557**	
H7	.228*	.161	.203*	.199*	.297**	.157

*Significant at the .05 level
**Significant at the .01 level

Several general conclusions were reached regarding the internal relationships of items in Parts II, III and IV. It was observed that all items in each of the parts seemed to be rather highly related. On the other hand the correlations may have resulted from judgment errors on the part of the panelists that determined the categorization of the items in Parts II and III. The six teachers who participated in an extended critique of the instrument all agreed that the items were clearly stated and understandable. When their questionnaires were reviewed with them, the teachers reported substantial continued agreement with previous answers. This would seem to indicate acceptable construct validity. In addition, when Parts II, III, and IV were used as an independent variable in a regression analysis, all three parts were significantly related to the dependent variable, Student Satisfaction (see Chapter III). In the step down regression, the significant F scores in Parts III, and IV were found to be contained in the first ordered variable, Part II. This indicated high internal validity since Parts II, III and IV of the Faculty Questionnaire all shared a common component in the analysis.

The Student Opinionnaire

Part I of the Student Opinionnaire, the demographic section was accepted on the basis of face validity. Part II, items 3-20 were analyzed statistically and proved to have a highly correlated internal structure. These data are summarized in the following table.

TABLE 4.--Internal Correlations of Opinionnaire Items 3-20, Using Mean Scores. Data on Part III, Student Satisfaction is Also Included.

Variable Descriptions

1. Summary Student Items 3-10.
2. Summary Student Items 11-20.
3. Summary Student Items 3-20.
4. Summary Student Satisfaction.

Variables	1	2	3
2	.598**		
3	.949**	.820**	
4	.581**	.533**	.624**

**Significant at the .01 level.

An additional inspection of items 3-20 was made, using a slightly difference approach which is described as follows. The seven commonplaces of Getzels were examined along with Houle's seven posited child-adult differences to reduce these lists to their lowest combined total of items. This was done by two independent judges who were adult education specialists. This process led to the development of a list of eight principles.

1. Experience. This principle was formed by combining Getzels' commonplace number 3 which suggested that learning depends upon previous experience, and Houle's child-adult differences numbers 1 and 2, which were also posited in the terms of adult's experiences.

2. Satisfactory Personal and Social Adjustment. This principle was formed by combining Getzels' commonplace number 7 which suggested that the student and teacher must both participate in the planning and carrying out of classroom activities, and Houle's item 7 which suggests that the teacher has no generalized authority over the students but only the authority he can gain by being of assistance to the students during the learning process.

3. Motivation. This principle was formed by combining Getzels' commonplace number 1 which suggested that an adult's difficulties with learning some kinds of new materials may be the result of a motivational resistance to change, and Houle's items number 5 and 6 which also suggest that adults may experience learning difficulties as a result of fixed habit patterns.

4. Feedback. This principles was the same as Getzels' commonplace number 6. Houle's posited child-adult differences do not speak to this principle.

5. Capacity. This principle was the same as Getzels' commonplace number 2. Houle's posited child-adult differences do not speak to this principle.

6. Relevant Relationships. This principle was formed by combining Getzels' commonplace number 4 which suggested that learning is conceived as the patterning of meaningful units of experience into useful configurations, and Houle's posited child adult difference number 4 which suggest that adults undertake learning experiences in search of meaningful information which can be applied to the solution of immediate problems.

7. Time Perspective. This principle is reflected in Houle's item number 3. Getzels' commonplaces do not speak to this principle.

8. Active Search. This principle is the same as Getzels' commonplace number 5. Houle's posited child-adult differences do not speak to this principle.[1]

These eight principles which formed the basis for items 3-20 resulted in the correlations presented in the following table. Because of the significantly high correlations between items construct validity was assumed.

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[1]A complete description of both Getzels' commonplaces and Houle's posited child-adult student difference is found in chapter I.

TABLE 5.--Inter-Item Correlation between Items 3-20, Student Opinionnaire, as Combined to Measure Eight Principles Extracted from Getzels' and Houle's Schema (N = 100)

Principle	Getzels	Houle	Items	Item Pairs	Correlations
Experience	#3	#1, #2	9, 10, 18	9-10	.380**
				9-18	.547**
				10-18	.440**
Satisfactory Personal & Social Adjustment	#7	#7	12, 19, 20	12-19	.562**
				12-20	.433**
				19-20	.614**
Motivation	#1	#5, #6	6, 7	6-7	.612**
Feedback	#6		8, 13	8-13	.204*
Capacity	#2		11	11	
Relevant Relationships	#4	#4	3, 4, 14, 16	3-4	.228*
				3-14	.448**
				3-16	.714**
				4-14	.347**
				4-16	.249*
				14-16	.407**
Time Perspective		#3	17	17	
Active Search	#5		5, 15	5-15	.289**

*Significant at the .05 level.
**Significant at the .01 level.

Follow up interviews with twelve students chosen randomly from those who had completed the instrument tended to confirm the construct validity of Part II. All but one of the students reported understanding the items and having rated their teachers as directed. This student reported he had experienced difficulty in following directions and in answering the questions because of the many different ways in which the questions were presented in the Student Opinionnaire. In the revised opinionnaire, common scales were applied to like items and the questions requiring similar kinds of responses were grouped. It appeared to the investigator that the improvements made in the new instrument tended to overcome the earlier difficulties.

Part III, was a student satisfaction scale. The internal correlations were high and construct validity was accepted. Follow up interviews tended to confirm that the items reflected student level of satisfaction.

TABLE 6.--Internal Correlations of Student Opinionnaire's Satisfaction Scales, Using Mean Scores

Variable Description

1. Satisfactory-Unsatisfactory
2. Meaningful-Meaningless
3. Good-Bad
4. Enjoyable-Distasteful
5. Interesting-Boring
6. Total Score

Variables	1	2	3	4	5
2	.882				
3	.865	.866			
4	.801	.798	.807		
5	.800	.806	.842	.830	
6	.935	.932	.940	.916	.923

Significant at the .01 level.

Based upon the evidence presented in the section, the Faculty Questionnaire and Student Opinionnaire were accepted as being valid and internally consistent.

Reliability of the Instruments

Test-retest reliabilities of the Teacher Questionnaire and the Student Opinionnaire were determined in a pilot study using five adult credit classes at the Denver Center of the University of Colorado. The instruments were initially completed during the final week of the school term. The retest was conducted by mail after a period of three weeks had elapsed. There were 107 students in these classes. Eighty nine students or 83% of the students participated in the retest by returning their completed questionnaires. All five of the instructors participated in the test-retest procedure.

A Pearson product moment correlation was used to test correlations between responses on the first and second instruments. The correlations used to provide an index of reliability of the respondents to the instruments are reported in Table 7.

TABLE 7.--Average of Coefficients of Product Moment Correlations Between Initial and Second Responses to Teacher Questionnaire and Student Opinionnaire, by Parts (Teacher N = 5, Student N = 107)

Part Number	Average of All Items
Teachers	
II	.730
III	.685
IV	.750
Students	
II (items 3-20)	.480
III (items 21-25)	.650

Based upon the evidence presented above, the reliability of the instruments was accepted.

Nature of the Statistical Analysis

The analysis of data for hypotheses one and two was done by means of multiple regression analyses. By this means the effect of various components within the independent variable could be projected. In all cases where multiple regression analysis was used, various ordering of the components within the variable were tried in order to find the best fit for the model. This was accomplished by use of the step down procedure in the regression equation.

In hypothesis one, it became necessary to divide the total group of 100 classes into high and low satisfaction groups. The effect of Teacher Knowledge in these two dichotomized groups was measured by means of analyses of variance. A covariate, age, was also added and an analysis of covariance done on these two independent variables. In order to analyze the contribution of the three components which made up the variable, Teacher Knowledge and the different effects each had on the two satisfaction groups, a multivariate analysis of variance was performed. By this means the three independent covariate effects were measured on the two satisfaction groups by means of a step down analysis.

Relationships in the Further Questions section were explored by means of simple contracts following an analysis of variance.

Programs for the multiple regression analysis, analysis of variance, and analysis of covariance were designed by Jeremy Finn;[1] correlation

[1]Jeremy D. Finn, Multivariance: Fortran Program for Univariate and Multivariate Analysis of Variance and Covariance (Buffalo: Department of Educational Psychology, School of Education, State University of New York, 1967).

matrices were done with a data text program designed by Arthur S. Couch.[1]

Summary

In this section the development and testing of the Faculty Questionnaire and the Student Opinionnaire were described, and the revision of the instruments was discussed. Next the method used to collect the data was outlined. The section was concluded with a description of the validity and reliability for the various parts of the instruments, and a description of the nature of the statistical analyses used in the study.

In Chapter III the major findings of the study are reported.

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[1]Arthur S. Couch, Data Text System (Cambridge: Department of Social Relations, Harvard University, 1966).

CHAPTER III

FINDINGS

In this chapter the results of the analysis of data testing the two major hypotheses will be presented. Since significant relationships were found within the variables, a further set of questions will be discussed. Descriptive data on the teachers in the sample and course content of the classes are also reported.

Hypothesis One

Hypothesis One states:

The level of student satisfaction in adult classes will be positively correlated with the level of the teacher's knowledge of certain principles of adult education.

The data were analyzed by multiple regression analyses with the three components of the knowledge of certain principles of adult teaching used as covariates in the analyses:

Part 2. Knowledge of psychology of learning.
Part 3. Knowledge regarding adult teaching practices.
Part 4. Knowledge of adult-child learning differences.

This hypothesis was rejected at the .05 level. The table below shows the results of the analysis.

TABLE 8.-- Regression Analysis of Independent Variable, Teacher Knowledge Compared with the Dependent Variable Student Satisfaction

Variable	Square Multiple R	F	Probability
Student Satisfaction	0.0029	0.0937	0.96

Step-Wise Regression

	Chi Square	d.f.	Probability
Part 2	0.1174	1	0.7
Part 3	0.0548	1	0.8
Part 4	0.1100	1	0.7

In the analysis Part 2 entered the regression equation with a negative β weight. Because it was suspected that Part 2 might be exerting a supressor effect on the relationship of Teacher Knowledge and Student Satisfaction, another regression analysis was done with a reordering of the variables, eliminating the effects of Part 2. Again the results were non-significant.

Since the regression analysis was performed on class means, individual differences of students would have been muted by this procedure.

The means of the classes were then inspected and a scatter gram devised to determine their distribution.

Table 9 illustrates the distribution of the 100 classes in terms of the dependent variable, Student Satisfaction. (P. 34.)

The distribution indicated that further insight into the interaction between Student Satisfaction and Teacher Knowledge could be determined by dichotomizing the scores on the Student Satisfaction continuum and forming two groups: high satisfaction and low satisfaction. The analysis would then be repeated comparing these two groups on the variable Teacher Knowledge. The range in mean scores on Student Satisfaction was 20.00 to 33.50. Twelve classes fell between 20.00 and 25.01 to make up the low group, while twelve classes fell between 32.00 and 33.50 to make up the high group.

A multivariate analysis of variance was performed contrasting these two groups on the variable Teacher Knowledge. Again the three components of the independent variable as well as tenure in teaching in public school and the university were used in the analysis.

Table 10 reports the results of this analysis. (P. 35.)

FIGURE 1.--Scatter Graph Illustrating the Distribution of the Mean Score of One Hundred Classes on the Variable Student Satisfaction

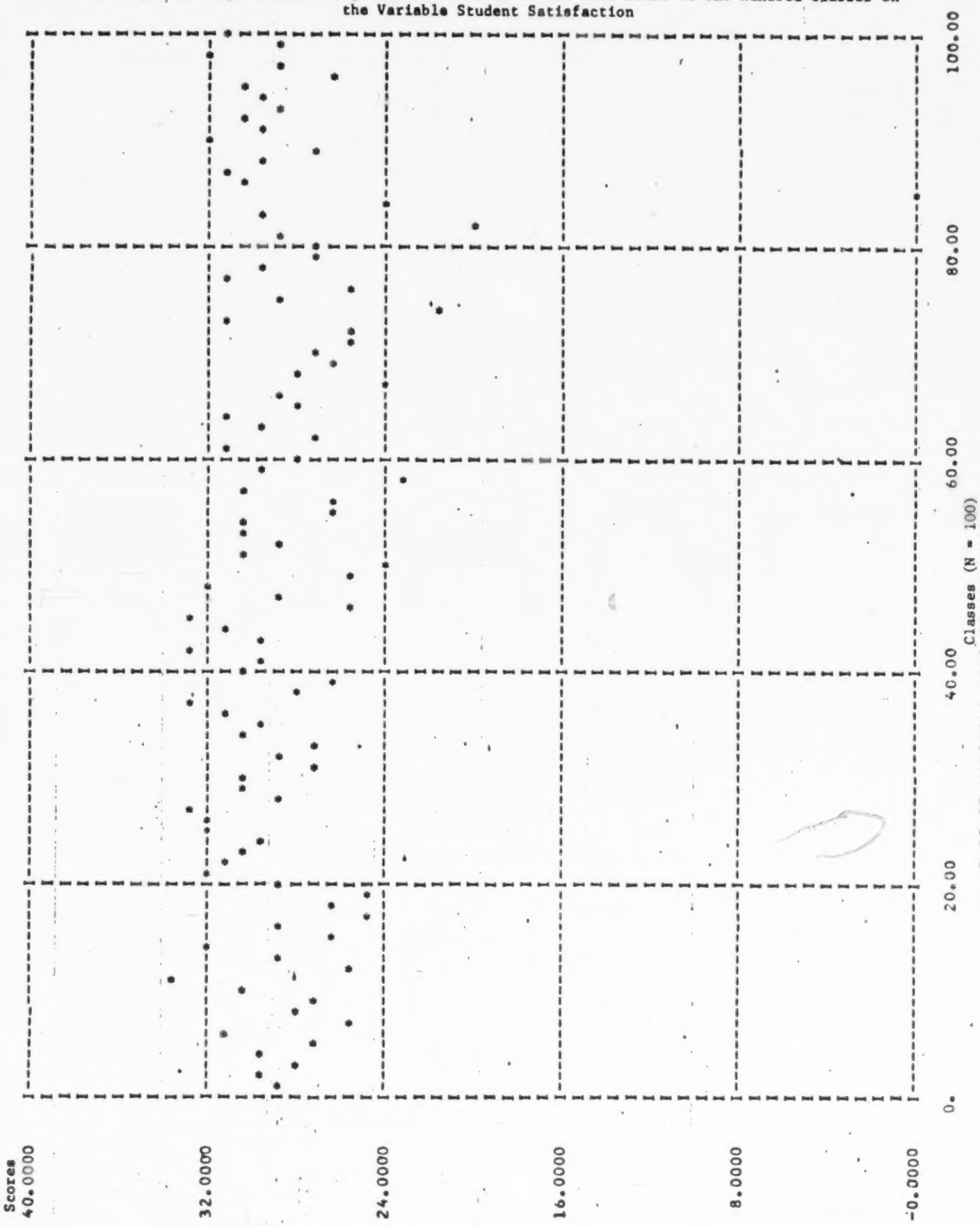

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TABLE 10.--Multivariate Analysis of Teacher Knowledge Effects on Student Satisfaction, the 12 Classes with the Highest Satisfaction Scores Against the 12 Classes with the Lowest Satisfaction Scores

Variable	Multivariate F	d.f.	Probability
Teacher Knowledge	1564.9	4 and 19	.0001

	Univariate F	Probability	Step down Analysis	Probability
Part II	6148.9	.0001	6148.9	0.0001
Part III	203.3	.0001	1.2	0.2881
Part IV	252.9	.0001	0.5	0.0144
Tenure	158.9	.0001	1.6	0.2162

This analysis indicated that Teacher Knowledge had a significant effect on Student Satisfaction at the .0001 level, when looking only at highly satisfied or at least satisfied classes. When there was moderate satisfaction or dissatisfaction, the effects of Teacher Knowledge were not evident.

A matrix was then made correlating Part I, II, III, and IV of the Teacher Questionnaire measuring Teacher Knowledge and Educational Background with Student Satisfaction. These correlations are shown in Table 11.

TABLE 11.--Simple Correlations of the Teacher Questionnaire (Parts I, II, III, and IV) and Student Satisfaction (N = 100)

	Teachers Ed. Background	Teacher Knowledge Scores		
	Part I	Part II	Part III	Part IV
Satisfaction Score 1	-.182	-.058	.036	-.031
Satisfaction Score 2	-.097	.025	.082	-.002
Satisfaction Score 3	-.115	-.065	-.029	-.016
Satisfaction Score 4	-.135	-.012	-.007	.049
Satisfaction Score 5	-.149	-.027	-.024	.103
Total Satisfaction Score	-.148	-.035	.011	.024

When the mean scores of the 100 classes were used as a basis for the correlation, Teacher Knowledge has a negative correlation with Student Satisfaction. Only two items in the entire comparison were significant and these in a negative way: variable 3, tenure in teaching adults and variable 16, the reading of journals and bulletins concerned with teaching of adults. This fact will be discussed under "further questions" later in the chapter.

The non-significant correlations indicated in the above comparison again point out the fact that the effect of Teacher Knowledge on Student Satisfaction can be demonstrated only at the ends of the continuum in this particular population.

Hypothesis Two

Hypothesis Two states:

Adult students who report that their teachers are applying certain principles of adult teaching will report higher levels of satisfaction than will students who do not perceive that their teachers are applying such principles.

A regression analysis was performed on the data to ascertain what effect Teacher Application of Principles of Adult Teaching had on Student Satisfaction. The results of this analysis are shown in Table 12.

TABLE 12.--Regression Analysis Showing the Effect of the Independent Variable. Teacher Application of Principles on Dependent Variable, Student Satisfaction

Variable	Square Multiple R	F Score	Probability
Student Satisfaction	0.3827	54.35	0.0001

Hypothesis Two is accepted at the 0.0001 level, with Teacher Application of Principles accounting for 38.26% of the variance in the dependent variable, Student Satisfaction.

A further analysis was done by using eight components extracted from Getzels' and Houle's lists of principles of adult learning which made up the independent variable, Teacher Application of Principles. These are discussed in Chapter II. These eight components were treated as covariates and several orderings of these covariates in the step-down regression were carried out in order to determine which ordering would best fit the model. The results of the best fit regression analysis are presented in Table 13.

TABLE 13.--Step-wise Regression of Five Co-variates Within the Independent Variable, Teacher Application of Principles and Their Effect on Student Satisfaction

Variable	Chi Square	d.f.	Probability
Relevant Relation-ships	349.8	1	0.0001
Motivation	77.3	1	0.0001
Time Perspective	52.4	1	0.0001
Sat. Pers. & Soc. Adjust.	26.8	1	0.0001
Feedback	15.3	1	0.0001

It should be noted that the components "Capacity," "Active Search," and "Experience" were eliminated in the regression as being non-significant in this population. The "Experience" component was the only category showing negative significant correlations between the items on the opinionnaire which purported to measure this component. One must therefore be cautious in assuming that "Experience" was not a significant component contributing to "Student Satisfaction." The difficulty may be in a poor choice of items to represent that component in the opinionnaire. Further, the items designed to measure "Capacity" and "Active Search" may also have been inadequate.

These data indicate that the students' perception of their teacher's Application of Principles found in Table 13 accounted for 27.9% of the variance in Student Satisfaction.

The standardized β weights for these five components were as follows:

TABLE 14.--Standardized β Weights for Five Components of Teacher Application

	β Weights	Conversion to o/o
Relevant Relationship	0.5175	33.77
Motivation	0.3437	22.51
Time Perspective	0.2737	17.88
Sat. Personal & Soc. Adjust.	0.2194	14.57
Feedback	0.1688	11.26

The contribution in terms of percent can be seen for each of the five components in the independent variable's overall influence on 27.9% of the variance within the dependent variable, Student Satisfaction.

A univariate analysis of variance was then run on the high and low satisfaction groups to see what effect "Teacher Application of Principles" had on the extremes of this variable. An F score of 12922.1 with 1 and 22 degrees of freedom was obtained, significant at the 0.0001 level.

Again the same pattern is seen as in Hypothesis One: that the contribution of the independent variable, in this case Teacher Application of Principles, has more effect on the extremes of satisfaction, than it has on those classes which clustered about the mean. A contrasting finding in these data to that found in Hypothesis One is that those classes showing medium satisfaction were significantly affected by Teacher Application of Principles wherein they were not significantly affected by Teacher Knowledge of Principles.

Further Questions

Relationships were found to exist between teacher's knowledge of certain principles of adult teaching, applications of these principles in classroom practice, and student satisfaction, therefore an attempt was made to determine the effect of certain other factors on the application of principles of teaching.

Question 1. What is the effect of the course of study or content area on the teacher's application of principles of adult teaching?

Independent judges grouped the 100 classes into five categories in terms of the content, using as a criterion for the categories the degree to which the course content lent itself to group work or group discussion. Descriptive data on the categorization as it applied to this population is shown in Table 15.

TABLE 15.--Description of Five Categories of Course Content in Terms of the Degree to which Group Work or Group Discussion was Facilitated

Category	Number of Students in Category	Number of Classes in Category	% of Total Sample	Range in Size	Type of Subject Areas Included In Category
Education	394	22	22%	10-28	History Administration Methods Research
Social Sciences	555	31	31%	10-37	History Anthropology Political Science Literature
Business	206	19	19%	9-40	Accounting Finance Marketing Real Estate
Physical Sciences	229	12	12%	10-28	Zoology Chemistry Physics Mathematics

TABLE 15.--Continued.

Category	Number of Students in Category	Number of Classes in Category	% of Total Sample	Range in Size	Type of Subject Areas Included In Category
Language	232	16	16%	8-22	French Russian Italian
Total	1596	100	100%		

These categories were ranked on a continuum, logically relating them to instructional method. The ranking from most conducive to least conducive to group discussion is as follows:

Education
Social Sciences
Business

Physical Sciences
Language

A univariate analysis of variance was performed comparing each category with every other category; simple contrasts were then made and the results are shown in Table 16.

TABLE 16.--Simple Contrasts of the Effect of Classes Categorized in Five Content Areas on Teacher Application of Principles

Category	F Score	d.f.	Probability
Education cf Physical Science	0.4564	1,95	0.5010
Education cf Language	0.4560	1,95	0.5012
Social Science cf Physical Science	0.0041	1,95	0.9494
Social Sciences cf Language	0.1115	1,95	0.9495
Business cf Physical Science	4.5261	1,95	0.0360
Business cf Language	4.5269	1,95	0.0360
Language cf Physical Science	8.7040	1,95	0.0040

Language, Business, and Physical Science were the variables which demonstrated a significant relationship in the Teacher's Application of Principles. The results of these contrasts showed that Language as compared with Physical Science had the highest significant relationship;

Language as compared with Business and Business as compared with Physical Science were equally significantly different in their relationship with Teacher Application of Principles.

On the basis of this information an empirical reordering of these categories would be:

Language
Business
Physical Science
Education and Social Science

The proposed logical ordering of course content on the basis of teaching method must be rejected. Business courses were the only category in the projected relationships which showed significant relationships. One can suggest that course content does appear to have some relationship to Teacher Application of Principles of Adult Education, but the basis for that relationship is not clear. There appears, on reflection, that a number of conditions might contribute to that relationship besides group interaction: compulsory nature of the course, motivation of the student, personality characteristics of teacher and student, and size of the class. Since this information is not available in this sample, no conclusions can be drawn on the proposed question.

Question 2. What is the effect of the teacher's tenure in adult education on his application of principles of adult teaching?

The 100 teachers in the sample were divided equally between full time and part time teaching. Forty-eight of the teachers had taught in public school, 98 had taught in college or the University and 66 had taught adult classes previously. Although 68 had taken from one to over 10 education courses, only six had taken an adult education course. Ninety of the teachers had taken at least one psychology course and 34 had taken a psychology of learning course. Only 12 of the teachers had attended any inservice training workshops on adult education. Thirty-five had read at least one book about adult education.

In general the teacher profile in this sample indicates a background in university teaching and formal training in education and psychology. One-third of the sample had had training in psychology of learning, one-eighth had had inservice training in adult education and one-sixteenth had been in a formal adult education class.

This information is reported fully in Table 17.

TABLE 17.--Summary of Teachers Education Background and Extent of Continuing Professional Education (Number of Teachers Reporting = 100)

	None	1-3	4-6	7-10	Over 10
Years teaching in public school	52	19	16	7	6
Years teaching in college or university	2	37	18	17	26
Years teaching adult classes	34	34	11	15	5
Number of books read on adults	15	24	9	1	1
Number of courses in education	32	14	8	11	35
Number of courses in psychology	10	48	15	12	15
Number of courses in adult education	92	8*	--	--	--
Number of courses in psychology of learning	64	36*	--	--	--
Number of inservice training workshops attended	84	14	1	1	0
Number of professional journals read	58	6	9	3	8
Number of professional organizations in which a member	25	73	2	--	--

*Number inferred; respondents indicated "some" courses were taken.

A univariate regression analysis was done to determine the effect of Tenure in Teaching Adults on the dependent variable, Teacher Application of Principles. The results are shown in Table 18.

TABLE 18.--A Univariate Regression Analysis Showing the Effect of Tenure in Teaching Adults on Teacher Application of Principles

Variable	Square Multiple R	F Score	Probability
Teacher Application of Principles	0.0656	6.88	0.01

This sub-hypothesis that Teacher's Tenure in Adult Education is significantly related to Teacher Application of Principles is accepted at the .01 level. Tenure in Adult Teaching accounts for 6.6% of the variance in Teacher Application of Principles. In the population studied one-third of the teachers had had no experience in teaching adults.

Adult education administrators typically do not retain teachers who are unable to maintain student interest and attendance. Accordingly, it appears that those who have been teaching adults longest are those who have demonstrated their ability to hold their students.

Question 3. What is the effect of the teacher's tenure in childhood education on his application of principles of adult education?

A univariate regression analysis was performed to determine the relationship of the Teacher's Tenure in Childhood Education on Teacher Application of Principles. The result of this analysis is shown in the following table.

TABLE 19.--Univariate Regression Analysis Showing the Effect of Teacher's Tenure in Childhood Education on Teacher Application of Principles

Variable	Square Multiple R	F Score	Probability
Teacher Application of Principles	0.0001	0.0124	0.9117

It was thought by the investigator that teachers with long tenure in childhood education would find it more difficult to apply principles of adult teaching in the adult classroom, since their teaching habits were formed and practiced with students lacking autonomy, experience, present time problem orientation and major job, family and social responsibilities.

This hypothesis was supported in the above analysis since no positive relationship was shown between experience in childhood education and teacher application of principles in adult teaching.

Simple correlations between experience in childhood education and teacher application of principles were non-significant (0.0112 based on 100 class means). In this population, it is not clear what effects, if any, experience in childhood education has on teacher application of principles of adult education.

Question 4. What is the effect of teacher training for adult education on the teacher's application of principles of adult education?

A regression analysis was run on these two variables with the special training in teaching adults made up of five components: the number of education courses taken, the number of teacher training institutes attended, the number of books on adults read, the number of journals and articles read about adults, and the number of professional organizations to which the teacher belonged. The results of this analysis are shown in Table 20.

TABLE 20.--Regression Analysis Showing the Effect of Special Training in Teaching Adults, as Shown in Five Co-variate Components, and the Teacher's Application of Principles of Adult Teaching

Variable	Square Multiple R	F Score	Probability
Teacher Application of Principles	0.0309	0.5933	0.701

This hypothesis was rejected at the .05 level. In this population no significant effect on Teacher Application of Principles was demonstrated by the independent variable, Teacher Training.

It should be pointed out that very few Teacher Training activities were evidenced in this particular population. Among 100 different teachers, 65 had read no books on adult teaching, 84 had not attended any teacher training workshops in adult education, 92 had had no formal courses in adult education, 58 had read no professional journals and 25 belonged to no professional organizations. Although 66 had taken general education courses and 90 had had general psychology courses, only 36 of the teachers had had a course in psychology of learning.

The general impression gained from these data is that a teacher's general educational background is not effective in causing a teacher to behave in a manner consistant with the principles of adult teaching. Since so little specific training in adult education was evidenced by this population, there was insufficient grounds for drawing hard conclusions regarding the effect specialized preparation in teaching adults would have on Teacher's Application of Principles.

Analysis of Data on the Relationship of Variables Outside the Two Major Hypotheses

The Relationships of Teacher Knowledge to Teacher Application of Principles

Since Teacher Knowledge was not related significantly to Student Satisfaction, while Teacher Application of Principles was significantly related, a direct comparison of Teacher Knowledge to Teacher Application of Principles was made. This information is presented in Table 21.

TABLE 21.--Regression Analysis Showing the Relationship of Teacher Knowledge on Teacher Application of Principles

Variable	Square Multiple R	F Score	Probability
Teacher Application of Principles	0.0321	1.0626	0.3688

Step-Wise Regression

Variable	Chi Square	d.f.	Probability
Teacher Knowledge			
Part IV	0.1685	1	0.6815
Part III	2.9731	1	0.0847
Part II	0.0123	1	0.9116

No significant relationship exists in this population between Teacher Knowledge and Teacher Application of Principles.

Sex and Age Effects on Student Satisfaction

Sex and age effects on Student Satisfaction were determined by a regression analysis. The results are shown in Table 22.

TABLE 22.--Sex and Age Effects on Student Satisfaction, Based on 1596 Scores

Variable	Square Multiple R	F Score	Probability	Step Down F	Probability
Student Satisfaction	.0178	14.46	0.0001	14.46	0.0001

Step-Wise Regression

Variable	Chi Square	d.f.	Probability
Age	15.75	1	.0001
Sex	12.92	1	.0004

Sex and age both significantly effect Student Satisfaction at the .0004 and .0001 level respectively, and account for 1.78% of the variance in the dependent variable. Women were found to be more satisfied than men in this population; student satisfaction increased in a significant relationship with the increased age of the student. Students in the oldest age group (over 50) showed the most satisfaction.

Teacher's Education Background and Student Satisfaction

The educational preparation of the teacher was discussed only in terms of "Teacher Application of Principles." In Hypothesis One, two satisfaction groupings were determined, one representing high Student Satisfaction and one representing low Student Satisfaction. The effects of Teacher Knowledge were found to be significant when these two groups were compared on the dependent variable, Student Satisfaction. The question then arose as to the possible differences which one might find if the Educational backgrounds of the two groups of teachers were examined. Table 23 presents contrasting profiles between the teachers of the two satisfaction groups, in terms of Teacher Educational Background.

TABLE 23.--Summary Table of Teacher's Educational Background, Contrasting the 12 High Satisfaction Classes with the 12 Least Satisfied Classes (Number of Teachers Reporting = 24)

	None		1-3		4-6		7-10		Over 10	
	Hi	Low	Hi	Low	Hi	Low	Hi	Low	Hi	Low
Years teaching in public school	6	5	1	4	2	1	1	1	2	1
Years teaching in college or univ.	0	4	6	0	3	2	1	0	2	6
Years teaching adult classes	5	1	4	5	2	4	1	0	0	2

TABLE 23.--Continued.

	None		1-3		4-6		7-10		Over 10	
	Hi	Low	Hi	Low	Hi	Low	Hi	Low	Hi	Low
Number of books read on adults	9	7	2	4	0	1	1	0		
Number of courses in education	5	4	1	2	1	2	1	1	4	3
Number of courses in psychology	1	2	5	6	1	0	2	2	3	2
Number of courses in adult ed.	12	11	0	1*						
Number of courses in psychology of learning	2	4	10*	8*						
Number of inservice training workshops on adult ed.	10	10	2	2						
Number of professional journals read	10	6	1	3	1	3				
Number of professional organizations of which a member	10	1	12	11						

*Number inferred; respondents indicated "some" courses were taken.

Teacher Knowledge had a significantly positive relationship to Student Satisfaction, when only the highest and least satisfied classes were compared. The data, in the above table, indicate that educational background and experience of the teachers in the least satisfied group of classes were not dissimilar to the educational background and experiences of the most satisfied groups of classes. These data do not demonstrate what made the differences in the effect of teacher knowledge within these two groups. It is clear, however, that an individual may understand concepts at the levels of recall and comprehension and be unable to apply the concepts in a concrete situation. An interaction effect which occurs in high and low satisfaction groups related to the variables included in this study may account for the significant findings only toward the ends of the satisfaction continuum.

Summary

In this chapter, data have been presented testing the two major hypotheses of the study; data were also presented in answer to questions which had been asked regarding relationships found within these two hypotheses. Other information not included in the formal proposal, but which developed in the process of the analysis has been presented.

Conclusions and recommendations based on these data are developed in Chapter IV.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

In this study information was presented about the increasing importance of adult education, the need for more teachers prepared to teach adults, and the general lack of formal or informal training programs to produce more teachers prepared to teach adults. Attention was drawn to the fact that theory about the differences between adult learning and childhood learning, though not definitive, had been developed in the form of principles. Empirical testing of these principles is lacking and in this study, such an empirical testing was proposed for certain of these relationships. Hopefully, the outcome generated by the study could then guide administrators and educators in the development of teacher training programs based on knowledge rather than intuition.

Conclusions

1. The level of a teacher's knowledge of principles of adult education is not significantly correlated with the level of student satisfaction in his class.

2. The extent to which students perceive their teacher's behavior as conforming to actions consistent with certain principles of adult education is significantly correlated with the level of satisfaction which the class reported by the students.

3. Teachers may be able to identify selected principles of adult education and yet be perceived by students as exhibiting behavior inconsistent with those principles.

4. The extent to which students perceive their teachers as exhibiting behavior which is defined as consistent with adult education principles is positively correlated with the number of years experience the teachers have had in adult education.

5. Adult student's level of satisfaction with their classes is determined more by the teacher's application of principles regarding (a) the students perceived relevant relationships, (b) motivation of the student, (c) the peculiar time perspective of the student, (d) satisfactory personal and social adjustments of the student, and (e) feedback to the student, than by the teachers application of principles regarding (a) the experience of the adult student, (b) the capacity of the adult student, and (c) the adult student's need to be involved in an active search for meaning.

Student satisfaction is a necessary, if not a sufficient, condition for learning to take place and therefore is an important consideration

in the adult classroom. The student satisfaction measure does not indicate, however, the quality and extent of the teaching done in the classroom, using the usual scientifically acceptable objective measures. These data cannot be generalized beyond the criteria of student satisfaction which is, in voluntary adult education, sufficiently important to merit careful attention.

6. The extent to which a teacher is perceived by his adult students as demonstrating teaching behaviors defined as consistent with the principles of adult education is not related to the amount of experience the teacher has had in elementary and secondary education.

7. The content area of courses taught in a university extension division program was found to be significantly related to the student's perception of the level of the teacher's application of adult education principles. Although the content areas and level of application variables were not found to be independent, no explanation was found to account for the relationships.

8. Teachers employed in the adult education program of a university extension division were found to have (a) a considerable amount of formal training in education and in psychology, (b) a minimal amount of formal training in the psychology of learning, and (c) virtually no training in adult education.

9. Women students enrolled in 100 university extension classes reported significantly higher levels of satisfaction with those courses than did men students attending those classes.

10. The age of students enrolled in 100 university extension classes was positively correlated with their reported levels of satisfaction in those classes.

Recommendations

1. Although the knowledge of principles of adult learning is a necessary prerequisite for adult teachers, the level of a teacher's knowledge of principles alone is not an adequate predictor of a teacher's ability to apply these principles in the adult classroom. Therefore, teacher training courses should not concentrate on the teaching of principles alone but rather seek ways to train teachers in the application of these principles.

2. Evaluation of teacher training programs should not be based solely on evidence produced by pencil and paper tests, since what knowledge a teacher is able to demonstrate on paper is a poor predictor of what a teacher is able to apply in the classroom; on the other hand, the knowledge of principles of adult education, either through formal acquisition or intuitive recognition, appears to contribute to the kind of teaching which will be viewed by adult students as satisfactory.

3. In the teaching of principles of adult education and adult learning, emphasis should be placed on instruction at level 3 of Bloom's taxonomy[1] rather than at level 1 or 2; knowledge and comprehension of principles of adult education and adult learning alone has been shown to be inadequate to ensure application of such principles.

4. A teacher's experience in working with children is not a useful predictor in estimating a teacher's ability to perform in an adult classroom. Therefore, requiring credentials of elementary and secondary certification in the public schools is not a satisfactory screening device in recruiting adult teachers.

5. The best indicator of the ability of a teacher to teach in a manner regarded by the adult student as being satisfactory is the number of years experience that the teacher has had in teaching adults. This is probably a significant qualification in adult classes where student continuing attendance is based on his perception of the degree to which his needs are met. In courses where other factors influence retention, such as certification, the compulsory nature of the course, or the credit nature of the course, this factor of experience in teaching adults might not be reflected in declining student participation but would likely be evident in student evaluation of the class. Accordingly, teachers who have demonstrated their ability to meet the needs of adult students are most likely to satisfy the needs of other adults in new classes.

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[1]Benjamin S. Bloom, Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain (New York: Longmans, Green and Co., 1956).

FACULTY QUESTIONNAIRE — UNIVERSITY ADULT EDUCATION

PART I **CLASS NUMBER** .....

1. Title and number of this course .....

2. Number of years of teaching experience. (Please check each part).
   a. In Public School None____, 1-3____, 4-6____, 7-10____, more____.
   b. In College or University None____ 1-3____, 4-6____, 7-10____, more____.
   c. In Adult Classes None____, 1-3____, 4-6____, 7-10____, more____.

3. Is teaching your full-time job? (Please check)
   a. Yes____, No____. b. If no, how many courses do you teach during the school year.....

4. Extent of your formal teaching training. (Please check each part)
   A. Have you taken any Education courses?
      1. Yes____, No____. 2. If yes, how many? 1-3____, 4-6____, 7-10____, more____.
      3. Were any of these courses in Adult Education? Yes____, No____.
   B. Have you taken any Psychology courses?
      1. Yes____, No____. 2. If yes how many? 1-3____, 4-6____, 7-10____, more____.
      3. Were any of these courses in Psychology of Learning? Yes ___ No____.
   C. Have you attended any inservice training workshops on adult education?
      1. Yes____, No____. 2. If yes, how many? 1-3____, 4-6____, 7-10____, more____.

5. Have you read any books about teaching adults? (Please check)
   1. Yes____, No____. 2. If yes, how many? 1-3____, 4-6____, 7-10____, more____.
   Please list: .....
   .....
   .....
   .....

6. Have you read any of these journals and bulletins concerned with the teaching of adults?

	Yes	No		Yes	No
Journal of Cooperative Extension	____	____	CSLEA's Notes and Essays	____	____
CSLEA's Continuing Education for Adults	____	____	Adult Education Monographs	____	____
Continuing Education Report - Univ. of Chicago	____	____	NAPSAE, A Treasury of Techniques for Teaching Adults	____	____
AEA's Adult Education	____	____	NAPSAE, How Adults Can Learn More Faster	____	____
Adult Leadership	____		NAPSAE, When You're Teaching Adults	____	____
			OTHERS: Please list		

OTHERS: Please list

.....
.....
.....

7. Please list the professional Associations you belong to:

.....
.....
.....

(circle **one** letter)

PART II

The following questions are concerned with Students and Learning. Please indicate the **one** alternative which you think is best by putting a circle around the letter in front of your choice.

FOR EXAMPLE:

The fact that performance scores fall more rapidly with age than do verbal scores may be due to

1. intellectual deterioration
2. decline of memory
3. emphasis on speed

8. Learning with understanding has two advantages over rote learning. Which of the following is one of them?
   A. it promotes retroactive facilitation
   B. it aids in retaining new, as opposed to old, material
   C. it is more applicable to new problems

9. Which of the following is not a principle of good motivation?
   A. students should see that what they learn in the class room has out-of-school applications
   B. some goals should be just beyond the student's reach
   C. students should be able to compare their achievement to their goals.

10. Being aware of how well we are doing on a task
    A. usually improves our performance
    B. makes the task somewhat less interesting
    C. makes us too anxious

11. The primary effect of strong anxiety on learning is to
    A. heighten motivation so that mental blocks can be removed
    B. reduce the students ability to determine clearly
    C. cause restlessness so that subjects welcome changes in experimental conditions

12. For a lesson to be effective, the instructor should
    A. organize the content into a unit that may be easily absorbed by the student
    B. relate the material to the student's experience
    C. plan the lesson to the last detail and not vary from this lesson plan

13. Research into adult learning has shown that
    A. adults after the age of 45 undergo a steady decline in the effectiveness with which they can learn
    B. the mind reaches its peak effectiveness in the early thirties
    C. other factors are more important than chronological age in determining the relative effectiveness of the mental processes of adults

14. For learning to be effective, the goal of the courses must be meaningful in terms of
    A. the instructor's plans
    B. the learner's needs and purposes
    C. the intellectual ideas involved

15. Most genuine reasoning is done
    A. by carrying out steps learned from an instructor
    B. by associating and organizing verbal symbols
    C. by recalling related concrete experiences

16. The class that learned the correct answers to a quiz immediately after taking it did better on the final exam than the class that had to wait to find out the answers. This experiment demonstrates the value of
    A. part-whole learning
    B. one kind of meaningful material
    C. feedback

17. In learning new responses that are to be substituted for old ones, stress is likely to:
    A. produce more rapid responses
    B. have no effect
    C. impede the new responses

(circle **one** letter)

18. Most differences in interests among individual students are the product of their differences in their
    A. opportunities
    B. age
    C. experimental background

19. Insight is best defined as
    A. a startling perception of an unexpected solution
    B. a sudden revelation of the correct solution
    C. an awareness of key relationships

20. It can safely be assumed that a student understands a principle when he can
    A. give examples of it
    B. use it in solving unfamiliar problems to which it applies
    C. recognize it as familiar when he encounters it again.

21. In order to complete the course of study in a class which has several slow learners in it, the instructor should
    A. have students take copious lecture notes to be studied at home
    B. have students read the textbook in class under his direction
    C. plan for varied methods of study of the essential concepts of each unit

PART III

The following questions are also concerned with Students and Learning but in a more practical way .On the basis of your experiences as an instructor, please comment briefly on each of the following:

22. As an instructor do you find it advantageous to involve your students as you are planning the goals of the course and the problem areas to be considered in accomplishing these goals?

    Yes ---------- No ----------

    Please comment on any relevant experiences you have had.

23. Please comment on the ways you have found to be most successful in getting your students to take an active part in classroom activities.

24. As you see it, what are the primary purposes for evaluating your students progress during your course?

25. It is generally agreed that "motivation" plays an important role in learning. It is said to effect not only what is learned but how much is learned. Would you comment briefly on any techniques you have found effective in motivating the students in your classes.

26. As you begin each new semester you are confronted with many new individuals in your classes. In view of your past teaching experience, please comment briefly on those things you try to learn about each individual and how this information assists you in presenting your subject matter.

PART IV

CLASS NUMBER . . . . . .

Listed below are several notions about the adult student which may apply to the classroom situation. As you design a course to be taught to adults, how much importance do you place on each of these?

Please indicate your answer by checking the rating scale that follows each statement. Please rate **all seven.**

FOR EXAMPLE: The more important the notion the nearer the "IMPORTANT" end of the scale your (✓) should be placed.

1. The adult's wider range of experience enriches and gives perspective to his learning processes.

IMPORTANT · _____ · _____ · _____ · _____ · _____ · _____ · _____ · UNIMPORTANT
1 2 3 4 5 6 7

2. The adult has had kinds of experience that are denied to children, such as courtship, marriage, parenthood, advancement of the job, and awareness of bodily decline. Therefore he has a depth of insight, particularly in the humanities and the social sciences, which the child cannot possess.

IMPORTANT · _____ · _____ · _____ · _____ · _____ · _____ · _____ · UNIMPORTANT
1 2 3 4 5 6 7

3. The adult must usually consider educational activity to be an incidental (although sometimes very important) task, whereas it is the central concern of childhood.

IMPORTANT · _____ · _____ · _____ · _____ · _____ · _____ · _____ · UNIMPORTANT
1 2 3 4 5 6 7

4. The child goes to school to fulfill an expected obligation, to prepare for later life, and to receive the rounded training which his society believes he needs. Adults undertake learning experience chiefly in terms of necessity or absorbing interests.

IMPORTANT · _____ · _____ · _____ · _____ · _____ · _____ · _____ · UNIMPORTANT
1 2 3 4 5 6 7

5. Adults can learn most things which are meaningful and important in terms of their present needs more rapidly than can the child, although many adults encounter initial difficulties caused by the prolonged dis-use of their mental faculties.

IMPORTANT · _____ · _____ · _____ · _____ · _____ · _____ · _____ · UNIMPORTANT
1 2 3 4 5 6 7

6. The habit patterns of adults are more fixed than are those of children, a fact which is often a deterrant, although not necessarily a block to education.

IMPORTANT · _____ · _____ · _____ · _____ · _____ · _____ · _____ · UNIMPORTANT
1 2 3 4 5 6 7

7. The teacher of adults has no generalized authority over his students such as that growing out of the adult-child relationship in earlier schooling. He has only the authority he can win by his demonstrated competence.

IMPORTANT · _____ · _____ · _____ · _____ · _____ · _____ · _____ · UNIMPORTANT
1 2 3 4 5 6 7

UNIVERSITY ADULT EDUCATION STUDENT OPINIONNAIRE CLASS NUMBER _____

To the student: This opinionnaire is part of a study being done by the Bureau of Class Instruction and General Adult Education. The purpose of the study is to compare the way different teachers teach, to determine which methods are most effective in the adult classroom situation.

The following set of questions ask for your judgments concerning various aspects of the behavior of the instructor in this class, during the course of this semester. Please give each item careful thought and consideration, and choose those answers which seem most accurate. We want you to take into account all of the meetings of this class which you have attended throughout the semester in choosing the answers to these questions. **Please do not omit judgments on any questions.** Your responses will be entirely confidential. This opinionnaire is an important part of our study, and your cooperation will be very greatly appreciated. Thank you.

1. Your sex. (Please check the appropriate number.)
   ____ 1. Male
   ____ 2. Female
2. Group in which your age occurs. (Please check the appropriate number.)
   ____ 1. Under 21
   ____ 2. 21-29
   ____ 3. 30-39
   ____ 4. 40-49
   ____ 5. 50 or over

Using the rating scale on the right, describe the extent to which the instructor in this class acted in the various teaching roles described below.

Directions:

Each description of a possible teaching role or action is followed by the rating scale. Check the space that you feel best represents your instructor's behavior during your class sessions. (Please rate each part.)

Example: If you feel that during this course he often acted as a Lecturer, you would check "Often" as in the following illustration:

Lecturer—he gave the information to the class, not much chance to discuss it.

OUR INSTRUCTOR DID THIS				
NEVER	RARELY	SOMETIMES	OFTEN	CONSTANTLY
			√	

3. During this course your instructor acted as:
   a. Consultant—he answered questions and suggested sources of additional informations.
   b. Discussion Leader—he gave information and raised questions in class. These were discussed and answers were sought.
   c. Lecturer—he gave the information to the class, not much chance to discuss it.
   d. Evaluator of student progress—he used various means of finding out how we were doing in this course.
   e. Demonstrator—he showed us how things were to be done.
   f. Synthesizer of ideas—he brought ideas together into meaningful patterns.

4. When the students disagreed with the ideas and/or concepts the instructor presented, how did he handle this situation?
   a. He relied upon his authority as the "subject matter expert" to persuade the class to his point of view.
   b. He tried to uncover the basis for the disagreement, and then sought to help the students to reorganize their ideas into the more meaningful concept.
   c. He explained his position and how he had arrived at it.
   d. He presented his lectures in such a way that there usually were no opportunities to disagree.

OUR INSTRUCTOR DID THIS				
NEVER	RARELY	SOMETIMES	OFTEN	CONSTANTLY

PLEASE READ THIS BEFORE YOU ANSWER THE REST OF THIS OPINIONNAIRE

Items 11 through 20 describe some possible classroom situations. Read each item carefully and then **check the ONE statement in each group** which in your opinion most nearly describes your instructor's actions.

11. How did your instructor assist the slower students?

___1. He arranged to meet with them individually and/or in small groups outside of the regular class.
___2. He spent time in class giving them extra help.
___3. He usually didn't. He let it be known to the class that he expected everyone to keep up on his own.

12. Who decided what you were going to accomplish in this course?

___1. The instructor and the class as a group determined the goals for the course. The instructor and the group determined what plans should be followed in accomplishing these goals.
___2. The instructor presented his goals for the course, and the class generally followed the instructor's plans for accomplishing these goals.
___3. The class suggested some of the goals for the course. The instructor determined how these and other goals of the course were to be accomplished.
___4. The class determined what the goals of this course should be and how we should accomplish them.

13. What use was made of the exams and quizzes given during this course?

___1. The exams and quizzes given during this course were used by your instructor as a form of guidance. That is, they were used primarily to show his students how well they were succeeding or failing to accomplish their personal goals in the course.
___2. The exams and quizzes were used primarily by your instructor as a means for judging gaps and weaknesses in the student's understanding.
___3. The exams and quizzes were used by your instructor primarily to encourage his students to study harder and to complete their assignments.
___4. No exams were given during this course.

14. What kinds of problems did your instructor present to the class for investigation?

___1. Vital, important to me personally
___2. In some ways interesting and useful
___3. Important, but not our real concern
___4. Relevant, but uninteresting and unimportant
___5. Trivial, unrealistic problems

15. How did your class arrive at solutions to the problems presented by your instructor?

___1. Our instructor apparently assumed that each student had about the same background and experience, therefore, the solutions to the problems were usually suggested by the same members of the class.
___2. Our instructor encouraged each student to suggest the best solution he was able to, considering his knowledge of the subject matter and past experiences.
___3. Our instructor provided the class with various solutions they were to consider in arriving at a final solution.
___4. Our instructor usually gave the class the "correct" answer.

16. During this course how did your instructor present his subject matter to the class?

___1. He gave us reading assignments and expected the class to learn what was in the text book regardless of how clearly the students understood it.
___2. He brought out most of the relevant facts but confused the students by bringing up too many side issues and unimportant facts.
___3. He brought out all of the relevant facts in such a way that the students could fit all of the parts into a meaningful whole.

17. What is your opinion of how much time is required in this course for homework assignments?

___1. I think that too much time is required.
___2. I think that a reasonable amount of time is required.
___3. I think that more time should be required.
___4. No homework was required.

18. In an adult evening class there is sometimes a great range in the ages of the students as well as in their knowledge of the subject matter being studied. How did your instructor deal with these differences?

___1. He assumed everyone in the class was capable of getting it on his own, either by reading the textbook or by studying his lecture notes.
___2. Our instructor encouraged each student to suggest the best solution he was able to, considering his knowledge of the subject matter and past experiences.
___3. Our instructor provided the class with various solutions they were to consider in arriving at a final solution.
___4. Our instructor usually gave the class the "correct" answer.

19. Which of the following most nearly describes how your instructor established his authority in the classroom?

___1. He demonstrated his competence as the "subject matter expert."
___2. He was the instructor, it was his class, and he was in charge.
___3. He was accepted by the class as one of us we agreed he would be our leader.

20. In your opinion what was your instructor's attitude toward this class?

___1. He did not seem to be interested in the individuals in the class and some students felt embarrassed and threatened.
___2. He was primarily interested in teaching the subject matter of the course.
___3. He created a comfortable learning situation by making the students feel that they were a part of the group and had something to contribute to it.

21. Please use the following pairs of words to give your opinion of your recent classroom experiences. Do this by making an (X) in the box that best describes your feelings about your class.

FOR EXAMPLE: If you feel that your experiences in this class were "Quite" valuable you put an (X) in the box below the word "Quite" on the valuable-worthless line.

	Extremely	Quite	Slightly	Neither	Slightly	Quite	Extremely	
Valuable	☐	☒	☐	☐	☐	☐	☐	**Worthless**

IN MY OPINION THIS CLASS WAS:

(Be sure that you mark a box on each of the following lines.)

	Extremely	Quite	Slightly	Neither	Slightly	Quite	Extremely	
Satisfactory	☐	☐	☐	☐	☐	☐	☐	**Unsatisfactory**
Meaningful	☐	☐	☐	☐	☐	☐	☐	**Meaningless**
Good	☐	☐	☐	☐	☐	☐	☐	**Bad**
Enjoyable	☐	☐	☐	☐	☐	☐	☐	**Distasteful**
Interesting	☐	☐	☐	☐	☐	☐	☐	**Boring**

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